

Estimate of the 2006 Harvest
of Spring Coastal Migrant Striped Bass in Chesapeake Bay

Prepared by

Linda S. Barker
Lisa Warner
Alexei Sharov

Maryland Department of Natural Resources
Fisheries Service
Annapolis, MD

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Introduction

The Maryland Department of Natural Resources (DNR) re-opened its spring recreational and charter fisheries for coastal migrant striped bass in 1992 after a six-year closure. From 1996 to 2003 the bay wide harvest quota was set at 30,000 fish. Since 2004, the spring quota has been calculated based on the VPA estimate of absolute abundance of coastwide population of age eight and older striped bass (Barker and Sharov, 2004). This report presents the calculation of the 2006 Maryland spring harvest of coastal migrant striped bass in Chesapeake Bay.

I. Calculation of the 2006 Maryland Chesapeake Bay Spring Harvest of Coastal Migrant Striped Bass

The method used to estimate the spring trophy season harvest in Maryland was presented in detail in Jones (2003), Barker and Sharov (2004) and Sharov et al. (2005). Results of the 2006 calculations are summarized in Table 1. The specific steps used in the calculation are as follows:

Estimation of harvest.

- Maryland charter boat logbook reports provided the census values of daily charter boat harvest (Table 1).
- NOAA MRFSS survey provided estimates of harvest for private/rental boats for Waves 2 and 3 (Table 1).

Harvest apportioned by time.

- The migrant harvest season overlaps parts of both Wave 2 and 3 of the MRFSS survey. Length distribution of the harvest is known to change over this time period, so total harvest was apportioned into 2-week intervals between April 16 and June 15.
- All Wave 2 landings occurred in the last 2 weeks of the wave.
- 2-week interval proportions for Wave 3 landings were developed as the proportions of the harvest registered in the Maryland charter boat logbook reports (Table 1).
- Total Maryland striped bass harvest per interval was calculated as charter boat harvest + private/rental harvest.
- The migrant harvest for Virginia's portion of Chesapeake Bay was determined using the same methodology applied to harvest estimates from MRFFS.
- Total Chesapeake Bay striped bass harvest per interval included Virginia's harvest (Table 1).

Harvest apportioned by length.

- Data from the Maryland DNR charter boat creel survey were used to develop the length frequency distribution of the Maryland harvest for each 2-week interval (Table 2).
- Each interval's harvest was distributed among each 2-week interval's length frequency distribution.
- The number of migrants harvested in Maryland during this period was determined by applying length-specific migration probabilities. (Table 3). These probabilities were derived from the estimate of the number of striped bass tagged on the spawning

grounds in Maryland that migrate to the Atlantic coast before December of the first year at large (Dorazio et al., 1994). The result was the migrant and resident harvest for each 2-week interval, distributed among interval-specific length groups.

- The migrant harvest for Virginia's portion of Chesapeake Bay was determined using the same methodology applied to harvest estimates from MRFFS.
- The total 2006 Maryland spring harvest of coastal migrant striped bass in Chesapeake Bay was calculated as the sum over all length groups and 2-week intervals.

Comments on the 2006 methodology.

The use of charter logbook reported harvest was approved by the ASMFC in 2005 and this method was used again in 2006. As in 2005, the MRFSS estimate of Waves 2 and 3 charter harvest was approximately twice that of the Maryland charter boat logbook reported harvest (80,454 vs. 42,990; Figure 1). The discrepancies between MRFSS and Maryland charter logbook values are likely to be the result of differences in the assessment methodology. While MRFSS subsamples charter boat logbooks and expands the mean number of trips per boat to the entire charter boat fleet, MD considers the daily charter logbooks as a census of the total number of trips and fish harvested during the year.

The final estimate of the 2006 Maryland coastal migrant harvest is 63,448 fish (Table 1). The spring 2006 migrant harvest in Virginia, based on MRFSS estimate of the total harvest, is 4,323 fish. Therefore, the estimate of the total 2006 Chesapeake Bay spring migrant harvest is 67,771 fish. Based on the final ASMFC-approved 2006 Chesapeake Bay quota of 41,488 fish, this harvest represents an exceedance of 26,283 fish.

References

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Jones P. 2003. Estimates of the harvest of coastal migrant striped bass in Chesapeake Bay in the spring of 2003. Report to the ASMFC Striped Bass Technical Committee, November 2003.

Sharov A, Barker LS and L Warner. 2005. Estimate of the 2005 Harvest and 2006 Quota for Spring Coastal Migrant Striped Bass in Chesapeake Bay. Maryland Department of Natural Resources, Annapolis MD.

Table 1. 2006 Maryland striped bass coastal migrant harvest, distributed among migrants and residents by 2-week intervals, based on data from the Maryland DNR creel survey, Maryland charter boat log reports, and MRFSS reported private harvest.

	MD				VA		
	MRFSS CHARTER	MD CHARTER	PRIVATE	SHORE	PARTY	ALL MODES	TOTAL
WAVE 2	21,013	11,605	40,794	0	0	0	52,399
Wave 3	59,451	31,385	63,347	6,653	2,936	23,285	187,057
Total	80,454	42,990	104,141	6,653	2,936	23,285	239,456

Wave	Interval	Charter Harvest (% by interval)		Charter Harvest MD logbooks		Charter Residents MD logbooks		Private Harvest MRFSS		Private Residents MRFSS		Md Harvest		Md Migrants		Md Residents	
Wave 2	Apr 1-15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Apr 16-30	100	11,605	9,816	1,789	40,794	34,506	6,288	52,399	44,322	8,077						
	Wave 2 total	1.00	11,605														
Wave 3	May 1-15	0.19	5,867	4,970	897	13,634	11,550	2,084	19,501	16,520	2,981						
	May 16-31	0.26	8,261	638	7,623	19,198	1,482	17,716	27,459	2,120	25,339						
	June 1-15	0.28	8,830	146	8,684	20,520	339	20,181	29,350	485	28,865						
	June 16-30	0.27	8,427			19,584			28,011								
	Wave 3 total	1.00	31,385			72,936			104,321								
	Season total		34,563	15,570	18,993	94,146	47,878	46,268	128,709	63,448	65,261						

Wave	Interval	Va Harvest MRFSS		Va Migrants MRFSS		Va Residents MRFSS		Total Harvest Migrants Md & Va		Total Migrants Md & Va		Residents Md & Va	
Wave 2	Apr 1-15	0	0	0	0	0	0	0	0	0	0	0	0
	Apr 16-30	0	0	0	0	52,399	8,077	44,322	44,322	8,077			
	Wave 2 total												
Wave 3	May 1-15	4,424	3,748	676	20,268	28,836	8,567	2,587	20,268	8,567			
	May 16-31	6,054	467	5,587	30,926	33,513	30,926	2,587	30,926	30,926			
	June 1-15	6,520	108	6,412	593	35,870	35,277	593	593	35,277			
	June 16-30	6,287											
	Wave 3 total	23,285											
	Season total	16,998	4,323	12,675	67,771	150,618	82,846	67,771	67,771	82,846			

Table 2. Length distribution of the 2006 Maryland striped bass spring season harvest by 2-week intervals between April 15 and June 15.

LGrp	April 15-30	May 1-15	May 16-31	June1-15
17			3	4
18			29	40
19			43	64
20			47	58
21			44	52
22			28	27
23			18	17
24			14	16
25			10	9
26			9	1
27			4	7
28	1		5	5
29	1		3	2
30			2	5
31	1		2	4
32	3	1	2	1
33	24	23	3	1
34	27	39	1	
35	27	42	2	
36	26	49	5	
37	31	38	3	
38	25	21	4	
39	12	18	1	
40	16	6	1	
41	8	9		
42	4	1		
43	2	1		
44	1	2		
45			1	
46	2	1		
47	1			
48				
49	1			
n	213	251	281	309

Table 3. 2006 Maryland striped bass coastal migrant harvest, distributed among migrants and residents by 1-cm length groups, based on data from the Maryland DNR creel survey, Maryland charter boat log reports, and MRFSS reported private harvest.

LGp	April 15-30			May 1-15			May 16-31			June 1-15					
	CHARTER	PRIVATE	TOTAL	CHARTER	PRIVATE	VA	TOTAL	CHARTER	PRIVATE	VA	TOTAL	CHARTER	PRIVATE	VA	TOTAL
18	0	0	0												
19															
20															
21															
22															
23															
24															
25															
26															
27															
28	7	25	32									18	43	14	74
29	11	37	47					19	44	14	77	11	26	8	45
30	0	0	0					17	40	12	69	16	38	12	67
31	21	74	95					23	53	17	92	23	53	17	92
32	83	291	374	12	27	9	48	30	69	22	121	30	69	22	121
33	817	2,871	3,688	336	780	253	1,370	55	128	40	224	55	128	40	224
34	1,074	3,775	4,849	665	1,546	502	2,714	21	50	16	87	21	50	16	87
35	1,198	4,212	5,411	800	1,858	603	3,261	48	111	35	194	48	111	35	194
36	1,242	4,368	5,610	1,005	2,335	758	4,097	129	300	94	523	129	300	94	523
37	1,555	5,466	7,021	818	1,900	617	3,335	81	189	60	329	81	189	60	329
38	1,293	4,547	5,840	466	1,083	351	1,901	112	260	82	453	112	260	82	453
39	633	2,225	2,858	407	947	307	1,661	28	66	21	115	28	66	21	115
40	855	3,004	3,859	137	319	104	561	29	67	21	117	29	67	21	117
41	431	1,513	1,944	208	483	157	847								
42	216	760	977	23	54	17	95								
43	108	381	490	23	54	18	95								
44	54	191	245	47	108	35	190								
45								29	68	22	119				
46	109	383	492	23	54	18	95								
47	54	192	246												
48															
49	54	192	246												
total	9,816	34,506	44,323	4,970	11,550	3,748	20,269	638	1,482	467	2,587	146	339	108	592

Figure 1. Time series of Maryland spring charter boat harvest of striped bass in MRFSS waves 2 & 3. The 2002 MRFSS estimate is not presented (they lacked 2002 data and estimated the 2002 value as the average of 1999-2001 values).

